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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,806	10/10/2003	Ross S. Dando	303.865US1	2161
21186	7590	01/24/2007		
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.			EXAMINER	
P.O. BOX 2938			CHEN, BRET P	
MINNEAPOLIS, MN 55402			ART UNIT	PAPER NUMBER
			1762	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/683,806

Applicant(s)

DANDO ET AL.

Examiner

B. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 and 79-91 is/are pending in the application.
- 4a) Of the above claim(s) 26-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 79-91 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Claims 1-51, 79-91 are pending in this application, which is an RCE of Serial Number 10/683806.

Amended claims 1, 13, 20, previously unentered from the Amendment After Final dated 10/20/06, has been entered.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/20/06 has been entered.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

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Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) **if a process, the steps.**

Extensive mechanical and design details of apparatus should not be given.

It is noted that the claimed invention is directed solely to a method. The examiner suggests amending the abstract to reflect same.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

New Matter

Claims 1-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 1, from which claims 2-12 depend, the phrase “at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas” is deemed new matter as there is no support for such a limitation in the original specification. The only mention of bond energy is in paragraph 19 and it is in reference to a target bond energy.

In claim 13, from which claims 14-19 depend, the phrase “an absorption frequency of a molecule of a gas corresponding to a bond energy of the molecule” is deemed new matter as there is no support for such a limitation in the original specification. The only mention of bond energy is in paragraph 19 and it does not appear to be in reference to a molecule.

In claim 20, from which claims 21-25 depend, the phrase “the absorption frequency corresponding to a bond energy of the one or more molecules” is deemed new matter as there is no support for such a limitation in the original specification. The only mention of bond energy is in paragraph 19 and it does not appear to be in reference to a molecule.

Nonenablement

Claims 1-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 1, from which claims 2-12 depend, the phrase “at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas” is deemed nonenabling as the specification does not enable one skilled in the art to select a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas. Specifically, what bond energy is the claim referring to? How does one skilled in the art select an absorption frequency based on the bond energy? How can the skilled artisan determine if the frequency is too low or too high? In what direction would the frequency have to change? The specification

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does not enable one skilled in the art to select a frequency corresponding to a bond energy of the gas.

In claim 13, from which claims 14-19 depend, the phrase “an absorption frequency of a molecule of a gas corresponding to a bond energy of the molecule” is deemed nonenabling as the specification does not enable one skilled in the art to select a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the molecule. Specifically, which molecule is the claim referring to? How does one skilled in the art select an absorption frequency based on the bond energy of a molecule? How can the skilled artisan determine if the frequency is too low or too high? In what direction would the frequency have to change? The specification does not enable one skilled in the art to select a frequency corresponding to a bond energy of the molecule.

In claim 20, from which claims 21-25 depend, the phrase “the absorption frequency corresponding to a bond energy of the one or more molecules” is deemed nonenabling as the specification does not enable one skilled in the art to select a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the molecule. Specifically, which molecule is the claim referring to? If there is more than one molecule, which molecule does the skilled artisan select to determine the bond energy? How does one skilled in the art select an absorption frequency based on the bond energy? How can the skilled artisan determine if the frequency is too low or too high? In what direction would the frequency have to change? The specification does not enable one skilled in the art to select a frequency corresponding to a bond energy of the one or more molecules.

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The following is a quotation of the second paragraph of 35 U.S.C. 112: .

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, from which claims 2-12 depend, the phrase “at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas” is deemed vague and confusing as to how one selects the appropriate frequency. While it is clear how one selects a frequency tuned to an absorption frequency of a gas precursor, it is not clear how one selects a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas. Clarification and appropriate amendments are requested.

In claim 13, from which claims 14-19 depend, the phrase “an absorption frequency of a molecule of a gas corresponding to a bond energy of the molecule” is deemed vague and confusing as to how one selects the appropriate frequency. While it is clear how one selects a frequency tuned to an absorption frequency of a gas precursor, it is not clear how one selects a frequency tuned to an absorption frequency of a molecule of a gas corresponding to a bond energy of the molecule. Clarification and appropriate amendments are requested.

In claim 20, from which claims 21-25 depend, the phrase “the absorption frequency corresponding to a bond energy of the one or more molecules” is deemed vague and confusing as to how one selects the appropriate frequency. While it is clear how one selects a frequency tuned to an absorption frequency of a gas precursor, it is not clear how one selects a frequency tuned to

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an absorption frequency corresponding to a bond energy of the one or more molecules.

Clarification and appropriate amendments are requested.

It should be noted that a proper search cannot be conducted until clarification and/or appropriate amendments of claims 1, 13, and 20 is performed by the applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 79-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rose (4,543,486) in view of Wang (5,733,609). Rose discloses a photolytic CVD method in which the laser frequency is chosen so that it excites the reaction gases which then react and deposit on the substrate (column 4, lines 20-25). Since the frequency is chosen such that it excites the gas, this reads on the frequency being tuned to an absorption frequency of the gas precursor. However, the reference fails to specifically teach a diode laser.

Wang teaches a variety of lasers for use in a deposition process including excimer lasers, CO₂ lasers, He-Cd lasers, diode lasers, Alexandrite lasers, solid state lasers, including Nd:YAG lasers, Nd:YLF lasers, Tm:YAG lasers, Ho:YAG lasers, Er:YAG lasers, Ruby lasers, Ti:sapphire lasers, Er:Glass lasers, diode pumped solid state lasers are the suitable pulsed laser sources. It would have been obvious to utilize the diode laser of Wang in the process of Rose because Wang teaches the use of different lasers in a deposition process and still obtain a successful deposition.

Claims 79-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schachameyer et al. (US 4,940,505) in view of Wang (5,733,609). Schachameyer discloses a method of photolytic CVD in which the wavelength of the laser is chosen according to the adsorption peaks of the precursor gases (column 2, 30-35). Setting the wavelength is the same as setting the frequency, as the speed of light is constant. The abstract and column 3, lines 21-49, teach that specific bonds of the precursor is broken and this causes decomposition and deposition. All other limitations are taught in column 4, lines 30-61. However, the reference fails to specifically teach a diode laser.

Wang teaches a variety of lasers for use in a deposition process including excimer lasers, CO₂ lasers, He-Cd lasers, diode lasers, Alexandrite lasers, solid state lasers, including Nd:YAG lasers, Nd:YLF lasers, Tm:YAG lasers, Ho:YAG lasers, Er:YAG lasers, Ruby lasers, Ti:sapphire lasers, Er:Glass lasers, diode pumped solid state lasers are the suitable pulsed laser sources. It would have been obvious to utilize the diode laser of Wang in the process of Schachameyer because Wang teaches the use of different lasers in a deposition process and still obtain a successful deposition.

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Response to Arguments


Applicant's arguments with respect to claims 79-91 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bc
1/19/07


**BRET CHEN
PRIMARY EXAMINER**